

SEQUENCE LISTING

<110> Welcher, Andrew
Wen, Duanzhi
Kelly, Michael

<120> Interferon-Like Molecules and Uses Thereof

<130> 99,372-A

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<150> 60/169,720
<151> 1999-12-08

<160> 39

<170> PatentIn Ver. 2.0

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Leu Lys Tyr Leu Trp Leu Val Ala Leu Val Ala Leu Tyr Ile Ser Pro
5 10 15

atc cag tct cag aac tgt gtg tat ctg gat cat acc atc ttg gaa aac 154
Ile Gln Ser Gln Asn Cys Val Tyr Leu Asp His Thr Ile Leu Glu Asn
20 25 30

atg aaa ctt ctg agc agc atc agg acc acc ttt ccc tta aga tgt cta 202
Met Lys Leu Leu Ser Ser Ile Arg Thr Thr Phe Pro Leu Arg Cys Leu
35 40 45 50

aaa gat atc acg gat ttt gag ttt cct caa gag att ctg ctg tac gtc 250
Lys Asp Ile Thr Asp Phe Glu Phe Pro Gln Glu Ile Leu Tyr Val
55 60 65

cag cat gtg aaa aag gac ata aag gca gtc acc tat cat ata tct tct 298
Gln His Val Lys Lys Asp Ile Lys Ala Val Thr Tyr His Ile Ser Ser
70 75 80

ctg gcg cta att att ttc agt ctt aaa gac tcc atc tcc ctg gcg aca	346		
Leu Ala Leu Ile Ile Phe Ser Leu Lys Asp Ser Ile Ser Leu Ala Thr			
85	90	95	
gag gaa cgc ttg gaa cgt atc aga tcg gga ctt ttc aaa caa gtg cag	394		
Glu Glu Arg Leu Glu Arg Ile Arg Ser Gly Leu Phe Lys Gln Val Gln			
100	105	110	
caa gct cga gag tgc atg gta gac gag gag aac aag aac acg gag gag	442		
Gln Ala Arg Glu Cys Met Val Asp Glu Asn Lys Asn Thr Glu Glu			
115	120	125	130
gac agt aca tca caa cat cct cac tca gag ggc ttc aag gca gtc tac	490		
Asp Ser Thr Ser Gln His Pro His Ser Glu Gly Phe Lys Ala Val Tyr			
135	140	145	
ctg gaa ttg aac aag tat ttc ttc aga atc aga aag ttc ctg gta aat	538		
Leu Glu Leu Asn Lys Tyr Phe Phe Arg Ile Arg Lys Phe Leu Val Asn			
150	155	160	
aag aaa tac agt ttc tgt gcc tgg aag att gtc gtg gtg gaa ata aga	586		
Lys Lys Tyr Ser Phe Cys Ala Trp Lys Ile Val Val Val Glu Ile Arg			
165	170	175	
aga tgt ttc agt ata ttt tac aaa cta ctc aac atg aat tgagaatcat	635		
Arg Cys Phe Ser Ile Phe Tyr Lys Leu Leu Asn Met Asn			
180	185	190	
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cagggttcaa ggtagtagcag tcaaaggaag tcttatgtta agcaaaagaa aaatttcagt	815		
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Glu Asn Met Lys Leu Leu Ser Ser Ile Arg Thr Thr Phe Pro Leu Arg
 35 40 45

Cys Leu Lys Asp Ile Thr Asp Phe Glu Phe Pro Gln Glu Ile Leu Leu
 50 55 60

Tyr Val Gln His Val Lys Lys Asp Ile Lys Ala Val Thr Tyr His Ile
65 70 75 80

Ser Ser Leu Ala Leu Ile Ile Phe Ser Leu Lys Asp Ser Ile Ser Leu
85 90 95

Ala Thr Glu Glu Arg Leu Glu Arg Ile Arg Ser Gly Leu Phe Lys Gln
100 105 110

Val Gln Gln Ala Arg Glu Cys Met Val Asp Glu Glu Asn Lys Asn Thr
115 120 125

Glu Glu Asp Ser Thr Ser Gln His Pro His Ser Glu Gly Phe Lys Ala
130 135 140

Val Tyr Leu Glu Leu Asn Lys Tyr Phe Phe Arg Ile Arg Lys Phe Leu
145 150 155 160

Val Asn Lys Lys Tyr Ser Phe Cys Ala Trp Lys Ile Val Val Val Glu
165 170 175

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20 25 30

Phe Glu Phe Pro Gln Glu Ile Leu Leu Tyr Val Gln His Val Lys Lys
35 40 45

Asp Ile Lys Ala Val Thr Tyr His Ile Ser Ser Leu Ala Leu Ile Ile
50 55 60

Phe Ser Leu Lys Asp Ser Ile Ser Leu Ala Thr Glu Glu Arg Leu Glu
65 70 75 80

Arg Ile Arg Ser Gly Leu Phe Lys Gln Val Gln Gln Ala Arg Glu Cys
85 90 95

Met Val Asp Glu Glu Asn Lys Asn Thr Glu Glu Asp Ser Thr Ser Gln
100 105 110

His Pro His Ser Glu Gly Phe Lys Ala Val Tyr Leu Glu Leu Asn Lys
115 120 125

Tyr Phe Phe Arg Ile Arg Lys Phe Leu Val Asn Lys Lys Tyr Ser Phe

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Cys Ala Trp Lys Ile Val Val Val Glu Ile Arg Arg Cys Phe Ser Ile
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Phe Tyr Lys Leu Leu Asn Met Asn
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gatttgggtg agtgagttag tgagttagtg catggactca cagctttgg ctttctgaaa 240
taccctgcat cagtctgtt atgatgattc cttagtgctg ggatggatca tccaggcatt 300
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ctgaagatat tcaggtatat aaaggcacat gaagggaaac tcaaaacatc attgtcatat 540
acacatcttc tggattttt agttgcaaa aaaa atg agc acc aaa cct gat atg 595
Met Ser Thr Lys Pro Asp Met
1 5

att caa aag tgt ttg tgg ctt gag atc ctt atg ggt ata ttc att gct 643
Ile Gln Lys Cys Leu Trp Leu Glu Ile Leu Met Gly Ile Phe Ile Ala
10 15 20

ggc acc cta tcc ctg gac tgt aac tta ctg aac gtt cac ctg aga aga 691
Gly Thr Leu Ser Leu Asp Cys Asn Leu Leu Asn Val His Leu Arg Arg
25 30 35

gtc acc tgg caa aat ctg aga cat ctg agt agt atg agc aat tca ttt 739
Val Thr Trp Gln Asn Leu Arg His Leu Ser Ser Met Ser Asn Ser Phe
40 45 50 55

cct gta gaa tgt cta cga gaa aac ata gct ttt gag ttg ccc caa gag	787		
Pro Val Glu Cys Leu Arg Glu Asn Ile Ala Phe Glu Leu Pro Gln Glu			
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ttt ctg caa tac acc caa cct atg aag agg gac atc aag aag gcc ttc	835		
Phe Leu Gln Tyr Thr Gln Pro Met Lys Arg Asp Ile Lys Lys Ala Phe			
75	80	85	
tat gaa atg tcc cta cag gcc ttc aac atc ttc agc caa cac acc ttc	883		
Tyr Glu Met Ser Leu Gln Ala Phe Asn Ile Phe Ser Gln His Thr Phe			
90	95	100	
aaa tat tgg aaa gag aga cac ctc aaa caa atc caa ata gga ctt gat	931		
Lys Tyr Trp Lys Glu Arg His Leu Lys Gln Ile Gln Ile Gly Leu Asp			
105	110	115	
cag caa gca gag tac ctg aac caa tgc ttg gag gaa gac gag aat gaa	979		
Gln Gln Ala Glu Tyr Leu Asn Gln Cys Leu Glu Glu Asp Glu Asn Glu			
120	125	130	135
aat gaa gac atg aaa gaa atg aaa gag aat gag atg aaa ccc tca gaa	1027		
Asn Glu Asp Met Lys Glu Met Lys Glu Asn Glu Met Lys Pro Ser Glu			
140	145	150	
gcc agg gtc ccc cag ctg agc agc ctg gaa ctg agg aga tat ttc cac	1075		
Ala Arg Val Pro Gln Leu Ser Ser Leu Glu Leu Arg Arg Tyr Phe His			
155	160	165	
agg ata gac aat ttc ctg aaa gaa aag aaa tac agt gac tgt gcc tgg	1123		
Arg Ile Asp Asn Phe Leu Lys Glu Lys Tyr Ser Asp Cys Ala Trp			
170	175	180	
gag att gtc cga gtg gaa atc aga aga tgt ttg tat tac ttt tac aaa	1171		
Glu Ile Val Arg Val Glu Ile Arg Arg Cys Leu Tyr Tyr Phe Tyr Lys			
185	190	195	
ttt aca gct cta ttc agg agg aaa taaggtatat ttttggatt aaaattcatt	1225		
Phe Thr Ala Leu Phe Arg Arg Lys			
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ttccctccga aatcttttc tccttctcct cctccatctt ctttttaagg attgttgtgc	1285		
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tgctccctag agtcaatact cttgcatttt cccctcctg ctcgggggaa aaaagggttga	1705		
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<213> Homo sapiens

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Leu Asn Val His Leu Arg Arg Val Thr Trp Gln Asn Leu Arg His Leu
35 40 45

Ser Ser Met Ser Asn Ser Phe Pro Val Glu Cys Leu Arg Glu Asn Ile
50 55 60

Ala Phe Glu Leu Pro Gln Glu Phe Leu Gln Tyr Thr Gln Pro Met Lys
65 70 75 80

Arg Asp Ile Lys Lys Ala Phe Tyr Glu Met Ser Leu Gln Ala Phe Asn
85 90 95

Ile Phe Ser Gln His Thr Phe Lys Tyr Trp Lys Glu Arg His Leu Lys
100 105 110

Gln Ile Gln Ile Gly Leu Asp Gln Gln Ala Glu Tyr Leu Asn Gln Cys
115 120 125

Leu Glu Glu Asp Glu Asn Glu Asn Glu Asp Met Lys Glu Met Lys Glu
130 135 140

Asn Glu Met Lys Pro Ser Glu Ala Arg Val Pro Gln Leu Ser Ser Leu
145 150 155 160

Glu Leu Arg Arg Tyr Phe His Arg Ile Asp Asn Phe Leu Lys Glu Lys
165 170 175

Lys Tyr Ser Asp Cys Ala Trp Glu Ile Val Arg Val Glu Ile Arg Arg
180 185 190

Cys Leu Tyr Tyr Phe Tyr Lys Phe Thr Ala Leu Phe Arg Arg Lys
195 200 205

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<212> PRT

<213> Homo sapiens

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20 25 30

Glu Asn Ile Ala Phe Glu Leu Pro Gln Glu Phe Leu Gln Tyr Thr Gln
35 40 45

Pro Met Lys Arg Asp Ile Lys Lys Ala Phe Tyr Glu Met Ser Leu Gln
50 55 60

Ala Phe Asn Ile Phe Ser Gln His Thr Phe Lys Tyr Trp Lys Glu Arg
65 70 75 80

His Leu Lys Gln Ile Gln Ile Gly Leu Asp Gln Gln Ala Glu Tyr Leu
85 90 95

Asn Gln Cys Leu Glu Glu Asp Glu Asn Glu Asp Met Lys Glu
100 105 110

Met Lys Glu Asn Glu Met Lys Pro Ser Glu Ala Arg Val Pro Gln Leu
115 120 125

Ser Ser Leu Glu Leu Arg Arg Tyr Phe His Arg Ile Asp Asn Phe Leu
130 135 140

Lys Glu Lys Lys Tyr Ser Asp Cys Ala Trp Glu Ile Val Arg Val Glu
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Arg Lys

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Ser Ser Asn Phe Gln Cys Gln Lys Leu Leu Trp Gln Leu Asn Gly Arg
35 40 45

Leu Glu Tyr Cys Leu Lys Asp Arg Met Asn Phe Asp Ile Pro Glu Glu
50 55 60

Ile Lys Gln Leu Gln Gln Phe Gln Lys Glu Asp Ala Ala Leu Thr Ile

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70

75

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Tyr Glu Met Leu Gln Asn Ile Phe Ala Ile Phe Arg Gln Asp Ser Ser
 85 90 95

Ser Thr Gly Trp Asn Glu Thr Ile Val Glu Asn Leu Leu Ala Asn Val
 100 105 110

Tyr His Gln Ile Asn His Leu Lys Thr Val Leu Glu Glu Lys Leu Glu
 115 120 125

Lys Glu Asp Phe Thr Arg Gly Lys Leu Met Ser Ser Leu His Leu Lys
 130 135 140

Arg Tyr Tyr Gly Arg Ile Leu His Tyr Leu Lys Ala Lys Glu Tyr Ser
 145 150 155 160

His Cys Ala Trp Thr Ile Val Arg Val Glu Ile Leu Arg Asn Phe Tyr
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Phe Ile Asn Lys Leu Thr Gly Tyr Leu Arg Asn
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<210> 8

<211> 520

<212> DNA

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<223> Description of Artificial Sequence: Rat IFN-like
 polypeptide cDNA insert and partial pAMG21 vector
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<222> (4)..(510)

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 Leu Ser Ser Ile Arg Thr Thr Phe Pro Leu Arg Cys Leu Lys Asp Ile
 20 25 30

acg gat ttt gag ttt cct caa gag att ctg ctg tac gtc cag cat gtg 144
 Thr Asp Phe Glu Phe Pro Gln Glu Ile Leu Leu Tyr Val Gln His Val
 35 40 45

aaa aag gac ata aag gca gtc acc tat cat ata tct tct ctg gcg cta 192
 Lys Lys Asp Ile Lys Ala Val Thr Tyr His Ile Ser Ser Leu Ala Leu
 50 55 60

att att ttc agt ctt aaa gac tcc atc tcc ctg gcg aca gag gaa cgc 240
 Ile Ile Phe Ser Leu Lys Asp Ser Ile Ser Leu Ala Thr Glu Glu Arg

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70

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ttg gaa cgt atc aga tcg gga ctt ttc aaa caa gtg cag caa gct cga 288
 Leu Glu Arg Ile Arg Ser Gly Leu Phe Lys Gln Val Gln Gln Ala Arg
 80 85 90 95

gag tgc atg gta gac gag gag aac aag aac acg gag gag gac agt aca 336
 Glu Cys Met Val Asp Glu Asn Lys Asn Thr Glu Glu Asp Ser Thr
 100 105 110

tca caa cat cct cac tca gag ggc ttc aag gca gtc tac ctg gaa ttg 384
 Ser Gln His Pro His Ser Glu Gly Phe Lys Ala Val Tyr Leu Glu Leu
 115 120 125

aac aag tat ttc ttc aga atc aga aag ttc ctg gta aat aag aaa tac 432
 Asn Lys Tyr Phe Phe Arg Ile Arg Lys Phe Leu Val Asn Lys Lys Tyr
 130 135 140

agt ttc tgt gcc tgg aag att gtc gtg gaa att cgt cgt tgt ttc 480
 Ser Phe Cys Ala Trp Lys Ile Val Val Glu Ile Arg Arg Cys Phe
 145 150 155

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<220>
 <223> Description of Artificial Sequence: Rat IFN-like
 polypeptide cDNA insert and partial pAMG21 vector
 sequence

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 20 25 30

Asp Phe Glu Phe Pro Gln Glu Ile Leu Tyr Val Gln His Val Lys
 35 40 45

Lys Asp Ile Lys Ala Val Thr Tyr His Ile Ser Ser Leu Ala Leu Ile
 50 55 60

Ile Phe Ser Leu Lys Asp Ser Ile Ser Leu Ala Thr Glu Glu Arg Leu
 65 70 75 80

Glu Arg Ile Arg Ser Gly Leu Phe Lys Gln Val Gln Gln Ala Arg Glu
 85 90 95

Cys Met Val Asp Glu Glu Asn Lys Asn Thr Glu Glu Asp Ser Thr Ser

100

105

110

Gln His Pro His Ser Glu Gly Phe Lys Ala Val Tyr Leu Glu Leu Asn
 115 120 125

Lys Tyr Phe Phe Arg Ile Arg Lys Phe Leu Val Asn Lys Lys Tyr Ser
 130 135 140

Phe Cys Ala Trp Lys Ile Val Val Val Glu Ile Arg Arg Cys Phe Ser
 145 150 155 160

Ile Phe Tyr Lys Leu Leu Asn Met Asn
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<211> 520

<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Rat IFN-like
 polypeptide cDNA insert and partial pAMG21 vector
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<221> CDS

<222> (4)..(510)

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 1 5 10 15

ctg agc agc atc cgt acc acc ttt cct ctg cgt tgt ctg aaa gat atc 96
 Leu Ser Ser Ile Arg Thr Thr Phe Pro Leu Arg Cys Leu Lys Asp Ile
 20 25 30

acg gat ttt gag ttt cct caa gag att ctg ctg tac gtc cag cat gtg 144
 Thr Asp Phe Glu Phe Pro Gln Glu Ile Leu Tyr Val Gln His Val
 35 40 45

aaa aag gac atc aag gca gtc acc tat cat atc tct tct ctg gcg ctg 192
 Lys Lys Asp Ile Lys Ala Val Thr Tyr His Ile Ser Ser Leu Ala Leu
 50 55 60

att att ttc agt ctt aaa gac tcc atc tcc ctg gcg aca gag gaa cgc 240
 Ile Ile Phe Ser Leu Lys Asp Ser Ile Ser Leu Ala Thr Glu Glu Arg
 65 70 75

ttg gaa cgt atc cgt tct ggt ctt ttc aaa caa gtg cag caa gct cgt 288
 Leu Glu Arg Ile Arg Ser Gly Leu Phe Lys Gln Val Gln Gln Ala Arg
 80 85 90 95

gag tgc atg gta gac gag gag aac aag aac acg gag gag gac agt aca 336
 Glu Cys Met Val Asp Glu Glu Asn Lys Asn Thr Glu Glu Asp Ser Thr
 100 105 110

tca caa cat cct cac tca gag ggc ttc aag gca gtc tac ctg gaa ttg 384
Ser Gln His Pro His Ser Glu Gly Phe Lys Ala Val Tyr Leu Glu Leu
115 120 125

aac aag tat ttc ttc cgt atc cgt aag ttc ctg gta aat aag aaa tac 432
Asn Lys Tyr Phe Phe Arg Ile Arg Lys Phe Leu Val Asn Lys Lys Tyr
130 135 140

agt ttc tgt gcc tgg aag att gtc gtg gtg gaa att cgt cgt tct ttc 480
Ser Phe Cys Ala Trp Lys Ile Val Val Val Glu Ile Arg Arg Ser Phe
145 150 155

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160 165

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<211> 169

<212> PRT

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Rat IFN-like
polypeptide cDNA insert and partial pAMG21 vector
sequence

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Ser Ser Ile Arg Thr Thr Phe Pro Leu Arg Cys Leu Lys Asp Ile Thr
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Asp Phe Glu Phe Pro Gln Glu Ile Leu Leu Tyr Val Gln His Val Lys
35 40 45

Lys Asp Ile Lys Ala Val Thr Tyr His Ile Ser Ser Leu Ala Leu Ile
50 55 60

Ile Phe Ser Leu Lys Asp Ser Ile Ser Leu Ala Thr Glu Glu Arg Leu
65 70 75 80

Glu Arg Ile Arg Ser Gly Leu Phe Lys Gln Val Gln Gln Ala Arg Glu
85 90 95

Cys Met Val Asp Glu Glu Asn Lys Asn Thr Glu Glu Asp Ser Thr Ser
100 105 110

Gln His Pro His Ser Glu Gly Phe Lys Ala Val Tyr Leu Glu Leu Asn
115 120 125

Lys Tyr Phe Phe Arg Ile Arg Lys Phe Leu Val Asn Lys Lys Tyr Ser
130 135 140

Phe Cys Ala Trp Lys Ile Val Val Glu Ile Arg Arg Ser Phe Ser

145

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155

160

Ile Phe Tyr Lys Leu Leu Asn Met Asn
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<210> 12
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 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Human IFN-like
 polypeptide cDNA insert and partial pAMG21 vector
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<221> CDS
 <222> (22)...(558)

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 1 5 10

cgt gtt acc tgg caa aat ctg aga cat ctg agt agt atg agc aat tca 99
 Arg Val Thr Trp Gln Asn Leu Arg His Leu Ser Ser Met Ser Asn Ser
 15 20 25

ttt cct gta gaa tgt cta cga gaa aac ata gct ttt gag ttg ccc caa 147
 Phe Pro Val Glu Cys Leu Arg Glu Asn Ile Ala Phe Glu Leu Pro Gln
 30 35 40

gag ttt ctg caa tac acc caa cct atg aag agg gac atc aag aag gcc 195
 Glu Phe Leu Gln Tyr Thr Gln Pro Met Lys Arg Asp Ile Lys Lys Ala
 45 50 55

ttc tat gaa atg tcc cta cag gcc ttc aac atc ttc agc caa cac acc 243
 Phe Tyr Glu Met Ser Leu Gln Ala Phe Asn Ile Phe Ser Gln His Thr
 60 65 70

ttc aaa tat tgg aaa gag aga cac ctc aaa caa atc caa ata gga ctt 291
 Phe Lys Tyr Trp Lys Glu Arg His Leu Lys Gln Ile Gln Ile Gly Leu
 75 80 85 90

gat cag caa gca gag tac ctg aac caa tgc ttg gag gaa gac gag aat 339
 Asp Gln Gln Ala Glu Tyr Leu Asn Gln Cys Leu Glu Glu Asp Glu Asn
 95 100 105

gaa aat gaa gac atg aaa gaa atg aaa gag aat gag atg aaa ccc tca 387
 Glu Asn Glu Asp Met Lys Glu Met Lys Glu Asn Glu Met Lys Pro Ser
 110 115 120

gaa gcc agg gtc ccc cag ctg agc agc ctg gaa ctg agg aga tat ttc 435
 Glu Ala Arg Val Pro Gln Leu Ser Ser Leu Glu Leu Arg Arg Tyr Phe
 125 130 135

cac agg ata gac aat ttc ctg aaa gaa aag aaa tac agt gac tgt gcc 483
His Arg Ile Asp Asn Phe Leu Lys Glu Lys Lys Tyr Ser Asp Cys Ala
140 145 150

tgg gag att gtc cga gtg gaa atc cgt cgt tgc ctg tac tac ttt tac 531
Trp Glu Ile Val Arg Val Glu Ile Arg Arg Cys Leu Tyr Tyr Phe Tyr
155 160 165 170

aaa ttt acc gct ctg ttc cgt cgt aaa taatggatcc 568
Lys Phe Thr Ala Leu Phe Arg Arg Lys
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<210> 13
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<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Rat IFN-like
polypeptide cDNA insert and partial pAMG21 vector
sequence

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Met Cys Asn Leu Leu Asn Val His Leu Arg Arg Val Thr Trp Gln Asn
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Leu Arg His Leu Ser Ser Met Ser Asn Ser Phe Pro Val Glu Cys Leu
20 25 30

Arg Glu Asn Ile Ala Phe Glu Leu Pro Gln Glu Phe Leu Gln Tyr Thr
35 40 45

Gln Pro Met Lys Arg Asp Ile Lys Lys Ala Phe Tyr Glu Met Ser Leu
50 55 60

Gln Ala Phe Asn Ile Phe Ser Gln His Thr Phe Lys Tyr Trp Lys Glu
65 70 75 80

Arg His Leu Lys Gln Ile Gln Ile Gly Leu Asp Gln Gln Ala Glu Tyr
85 90 95

Leu Asn Gln Cys Leu Glu Asp Glu Asn Glu Asn Glu Asp Met Lys
100 105 110

Glu Met Lys Glu Asn Glu Met Lys Pro Ser Glu Ala Arg Val Pro Gln
115 120 125

Leu Ser Ser Leu Glu Leu Arg Arg Tyr Phe His Arg Ile Asp Asn Phe
130 135 140

Leu Lys Glu Lys Lys Tyr Ser Asp Cys Ala Trp Glu Ile Val Arg Val
145 150 155 160

Glu Ile Arg Arg Cys Leu Tyr Tyr Phe Tyr Lys Phe Thr Ala Leu Phe
165 170 175

Arg Arg Lys

<210> 14
<211> 568
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Human IFN-like
polypeptide cDNA insert and partial pAMG21 vector
sequence

<220>
<221> CDS
<222> (22)..(558)

<400> 14
tctagaaaagg aggaataaca t atg tgt aac ctg ctg aac gtt cac ctg cgt 51
Met Cys Asn Leu Leu Asn Val His Leu Arg
1 5 10

cgt gtt acc tgg caa aat ctg aga cat ctg agt agt atg agc aat tca 99
Arg Val Thr Trp Gln Asn Leu Arg His Leu Ser Ser Met Ser Asn Ser
15 20 25

ttt cct gta gaa tgt cta cga gaa aac ata gct ttt gag ttg ccc caa 147
Phe Pro Val Glu Cys Leu Arg Glu Asn Ile Ala Phe Glu Leu Pro Gln
30 35 40

gag ttc ctg caa tac acc caa cct atg aag agg gac atc aag aag gcc 195
Glu Phe Leu Gln Tyr Thr Gln Pro Met Lys Arg Asp Ile Lys Lys Ala
45 50 55

ttc tat gaa atg tcc cta cag gcc ttc aac atc ttc agc caa cac acc 243
Phe Tyr Glu Met Ser Leu Gln Ala Phe Asn Ile Phe Ser Gln His Thr
60 65 70

ttc aaa tat tgg aaa gag aga cac ctc aaa caa atc caa ata gga ctt 291
Phe Lys Tyr Trp Lys Glu Arg His Leu Lys Gln Ile Gln Ile Gly Leu
75 80 85 90

gat cag caa gca gag tac ctg aac caa tgc ttg gag gaa gac gag aat 339
Asp Gln Gln Ala Glu Tyr Leu Asn Gln Cys Leu Glu Glu Asp Glu Asn
95 100 105

gaa aat gaa gac atg aaa gaa atg aaa gag aat gag atg aaa ccc tca 387
Glu Asn Glu Asp Met Lys Glu Met Lys Glu Asn Glu Met Lys Pro Ser
110 115 120

gaa gcc agg gtc ccc cag ctg agc agc ctg gaa ctg agg aga tat ttc 435
Glu Ala Arg Val Pro Gln Leu Ser Ser Leu Glu Leu Arg Arg Tyr Phe
125 130 135

cac agg ata gac aat ttc ctg aaa gaa aag aaa tac agt gac tgt gcc 483
His Arg Ile Asp Asn Phe Leu Lys Glu Lys Tyr Ser Asp Cys Ala

140

145

150

tgg gag att gtc cga gtg gaa atc cgt cgt tct ctg tac tac ttt tac 531
Trp Glu Ile Val Arg Val Glu Ile Arg Arg Ser Leu Tyr Tyr Phe Tyr
155 160 165 170

aaa ttt acc gct ctg ttc cgt cgt aaa taatggatcc 568
Lys Phe Thr Ala Leu Phe Arg Arg Lys
175

<210> 15
<211> 179
<212> PRT
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Human IFN-like
polypeptide cDNA insert and partial pAMG21 vector
sequence

<400> 15

Met Cys Asn Leu Leu Asn Val His Leu Arg Arg Val Thr Trp Gln Asn
1 5 10 15

Leu Arg His Leu Ser Ser Met Ser Asn Ser Phe Pro Val Glu Cys Leu
20 25 30

Arg Glu Asn Ile Ala Phe Glu Leu Pro Gln Glu Phe Leu Gln Tyr Thr
35 40 45

Gln Pro Met Lys Arg Asp Ile Lys Lys Ala Phe Tyr Glu Met Ser Leu
50 55 60

Gln Ala Phe Asn Ile Phe Ser Gln His Thr Phe Lys Tyr Trp Lys Glu
65 70 75 80

Arg His Leu Lys Gln Ile Gln Ile Gly Leu Asp Gln Gln Ala Glu Tyr
85 90 95

Leu Asn Gln Cys Leu Glu Asp Glu Asn Glu Asn Glu Asp Met Lys
100 105 110

Glu Met Lys Glu Asn Glu Met Lys Pro Ser Glu Ala Arg Val Pro Gln
115 120 125

Leu Ser Ser Leu Glu Leu Arg Arg Tyr Phe His Arg Ile Asp Asn Phe
130 135 140

Leu Lys Glu Lys Lys Tyr Ser Asp Cys Ala Trp Glu Ile Val Arg Val
145 150 155 160

Glu Ile Arg Arg Ser Leu Tyr Tyr Phe Tyr Lys Phe Thr Ala Leu Phe
165 170 175

Arg Arg Lys

<210> 16
<211> 556
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Human IFN-like polypeptide cDNA insert and partial pAMG21 vector sequence

<220>

<221> CDS
<222> (1)..(546)

<400> 16

cat atg ctg gac tgt aac ctg ctg aac gtt cac ctg cgt cgt gtt acc 48
His Met Leu Asp Cys Asn Leu Leu Asn Val His Leu Arg Arg Val Thr
1 5 10 15

tgg caa aat ctg aga cat ctg agt agt atg agc aat tca ttt cct gta 96
Trp Gln Asn Leu Arg His Leu Ser Ser Met Ser Asn Ser Phe Pro Val
20 25 30

gaa tgt cta cga gaa aac ata gct ttt gag ttg ccc caa gag ttt ctg 144
Glu Cys Leu Arg Glu Asn Ile Ala Phe Glu Leu Pro Gln Glu Phe Leu
35 40 45

caa tac acc caa cct atg aag agg gac atc aag aag gcc ttc tat gaa 192
Gln Tyr Thr Gln Pro Met Lys Arg Asp Ile Lys Lys Ala Phe Tyr Glu
50 55 60

atg tcc cta cag gcc ttc aac atc ttc agc caa cac acc ttc aaa tat 240
Met Ser Leu Gln Ala Phe Asn Ile Phe Ser Gln His Thr Phe Lys Tyr
65 70 75 80

tgg aaa gag aga cac ctc aaa caa atc caa ata gga ctt gat cag caa 288
Trp Lys Glu Arg His Leu Lys Gln Ile Gln Ile Gly Leu Asp Gln Gln
85 90 95

gca gag tac ctg aac caa tgc ttg gag gaa gac gag aat gaa aat gaa 336
Ala Glu Tyr Leu Asn Gln Cys Leu Glu Asp Glu Asn Glu Asn Glu
100 105 110

gac atg aaa gaa atg aaa gag aat gag atg aaa ccc tca gaa gcc agg 384
Asp Met Lys Glu Met Lys Glu Asn Glu Met Lys Pro Ser Glu Ala Arg
115 120 125

gtc ccc cag ctg agc agc ctg gaa ctg agg aga tat ttc cac agg ata 432
Val Pro Gln Leu Ser Ser Leu Glu Leu Arg Arg Tyr Phe His Arg Ile
130 135 140

gac aat ttc ctg aaa gaa aag aaa tac agt gac tgt gcc tgg gag att 480
Asp Asn Phe Leu Lys Glu Lys Lys Tyr Ser Asp Cys Ala Trp Glu Ile
145 150 155 160

gtc cga gtg gaa atc cgt cgt tgc ctg tac tac ttt tac aaa ttt acc 528
Val Arg Val Glu Ile Arg Arg Cys Leu Tyr Tyr Phe Tyr Lys Phe Thr
165 170 175

gct ctg ttc cgt cgt aaa taatggatcc 556
Ala Leu Phe Arg Arg Lys
180

<210> 17
<211> 182
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Human IFN-like
polypeptide cDNA insert and partial pAMG21 vector
sequence

<400> 17
His Met Leu Asp Cys Asn Leu Leu Asn Val His Leu Arg Arg Val Thr
1 5 10 15

Trp Gln Asn Leu Arg His Leu Ser Ser Met Ser Asn Ser Phe Pro Val
20 25 30

Glu Cys Leu Arg Glu Asn Ile Ala Phe Glu Leu Pro Gln Glu Phe Leu
35 40 45

Gln Tyr Thr Gln Pro Met Lys Arg Asp Ile Lys Lys Ala Phe Tyr Glu
50 55 60

Met Ser Leu Gln Ala Phe Asn Ile Phe Ser Gln His Thr Phe Lys Tyr
65 70 75 80

Trp Lys Glu Arg His Leu Lys Gln Ile Gln Ile Gly Leu Asp Gln Gln
85 90 95

Ala Glu Tyr Leu Asn Gln Cys Leu Glu Asp Glu Asn Glu Asn Glu
100 105 110

Asp Met Lys Glu Met Lys Glu Asn Glu Met Lys Pro Ser Glu Ala Arg
115 120 125

Val Pro Gln Leu Ser Ser Leu Glu Leu Arg Arg Tyr Phe His Arg Ile
130 135 140

Asp Asn Phe Leu Lys Glu Lys Lys Tyr Ser Asp Cys Ala Trp Glu Ile
145 150 155 160

Val Arg Val Glu Ile Arg Arg Cys Leu Tyr Tyr Phe Tyr Lys Phe Thr
165 170 175

Ala Leu Phe Arg Arg Lys
180

<210> 18
<211> 11
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 18
Tyr Gly Arg Lys Lys Arg Arg Gln Arg Arg Arg
1 5 10

<210> 19
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Internalizing
domain derived from HIV tat protein

<400> 19
Gly Gly Gly Gly Tyr Gly Arg Lys Lys Arg Arg Gln Arg Arg Arg
1 5 10 15

<210> 20
<211> 21
<212> DNA
<213> Rattus norvegicus

<400> 20
atgacactga agtattttag g 21

<210> 21
<211> 21
<212> DNA
<213> Rattus norvegicus

<400> 21
attcatgttg agtagtttgt a 21

<210> 22
<211> 48
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR primer
1825-22

<400> 22
gaataacata tgtgtgtata tctcgatcat actatcttgg agaatatg 48

<210> 23
<211> 63

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR primer
1825-21

<400> 23

ccgcggatcc attaattcat gttcagcagt ttgtaaaaaa tactgaaaca acgacgaatt 60

tcc

63

<210> 24

<211> 63

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR primer
1909-56

<400> 24

ccgcggatcc attaattcat gttcagcagt ttgtaaaaaa tactgaaaga acgacgaatt 60

tcc

63

<210> 25

<211> 67

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR primer
1967-32

<400> 25

ttgatctaga aaggaggaat aacatatgtg taacctgctg aacgttcacc tgcgtcgtgt 60

tacctgg

67

<210> 26

<211> 71

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR primer
1982-14

<400> 26

ccgcggatcc attatttacg acgaaacaga gcggtaaatt tgtaaaagta gtacaggcaa 60

cgacgatttc c

71

<210> 27
<211> 72
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR primer
1967-33

<400> 27
ccgcggatcc attatttacg acggaacaga gcggtaaatt tgtaaaagta gtacagagaa 60
cgacggattt cc 72

<210> 28
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR primer
2103-87

<400> 28
aaggagcata tgctggactg taacctgctg aacgttcac 39

<210> 29
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR primer
1200-54

<400> 29
gttattgctc agcggtggca 20

<210> 30
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR primer
1847-77

<400> 30
cccaagctta ccatgacact gaagtattta tg 32

<210> 31
<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR primer
1847-78

<400> 31

aaggaaaaaa gcggccgcat tcatgttgag tag

33

<210> 32

<211> 35

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR primer
1896-56

<400> 32

acgcgtcgac tcatcaattc atgttgagta gtttg

35

<210> 33

<211> 39

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR primer
1896-57

<400> 33

aaggaaaaaa gcggccgctc atcaattcat gttgagtag

39

<210> 34

<211> 31

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR primer
1954-45

<400> 34

acgcgtcgac ttattatttc ctccctgaata g

31

<210> 35

<211> 42

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR primer

1954-46

<400> 35
aaggaaaaaa gcggccgctt attatccct cctgaataga gc

42

<210> 36
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR primer
1955-44

<400> 36
cccaagctta ccatgagcac caaacctgat atg

33

<210> 37
<211> 34
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR primer
1954-47

<400> 37
cccaagctta ccatgattca aaagtgtttg tggc

34

<210> 38
<211> 53
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR primer
1954-48

<400> 38
aaggaaaaaa gcggccgcgc ggccctcgat ttccctcctg aatagagctg taa

53

<210> 39
<211> 41
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR primer
1954-49

<400> 39
aaggaaaaaa gcggccgctt tcctcctgaa tagagctgta a

41